Electronic Supplementary Material (ESI) for Soft Matter.

Intrinsic Nonlinearities in the mechanics of hard sphere suspensions

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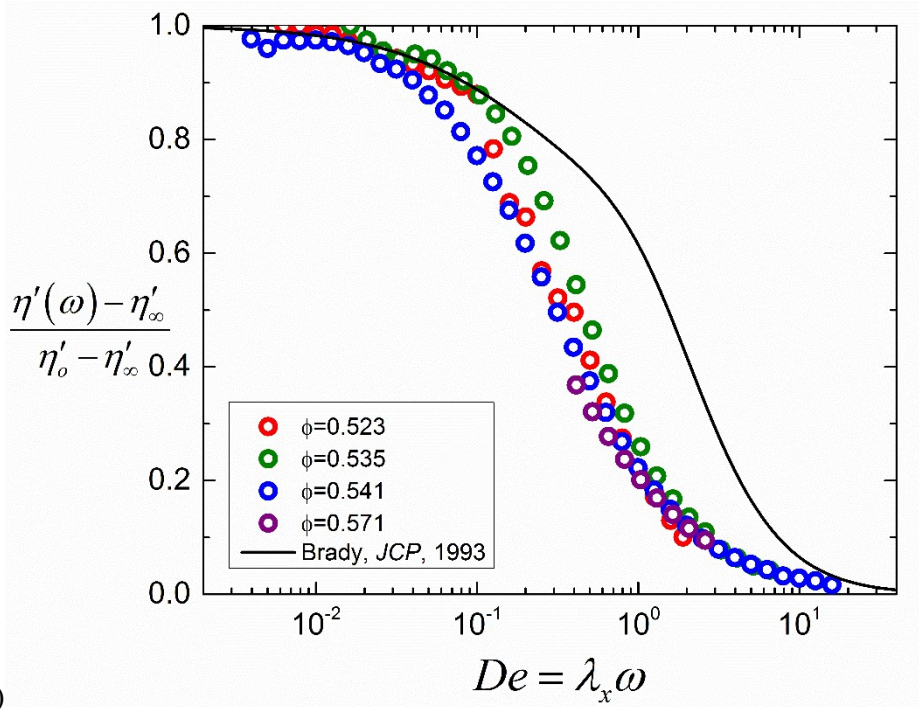
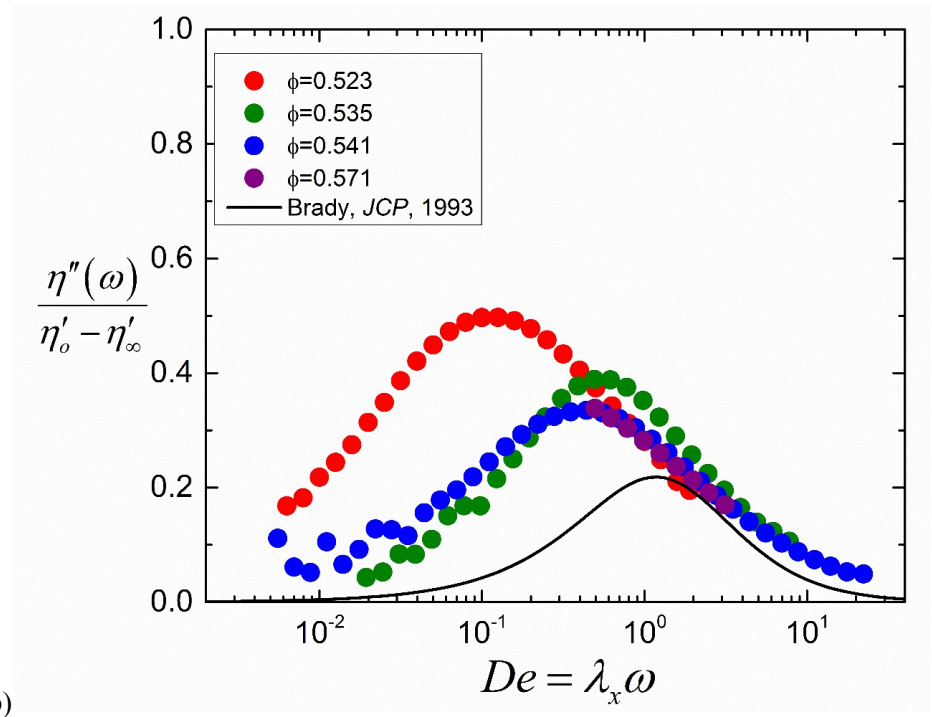
SUPPLEMENTAL FIGURES

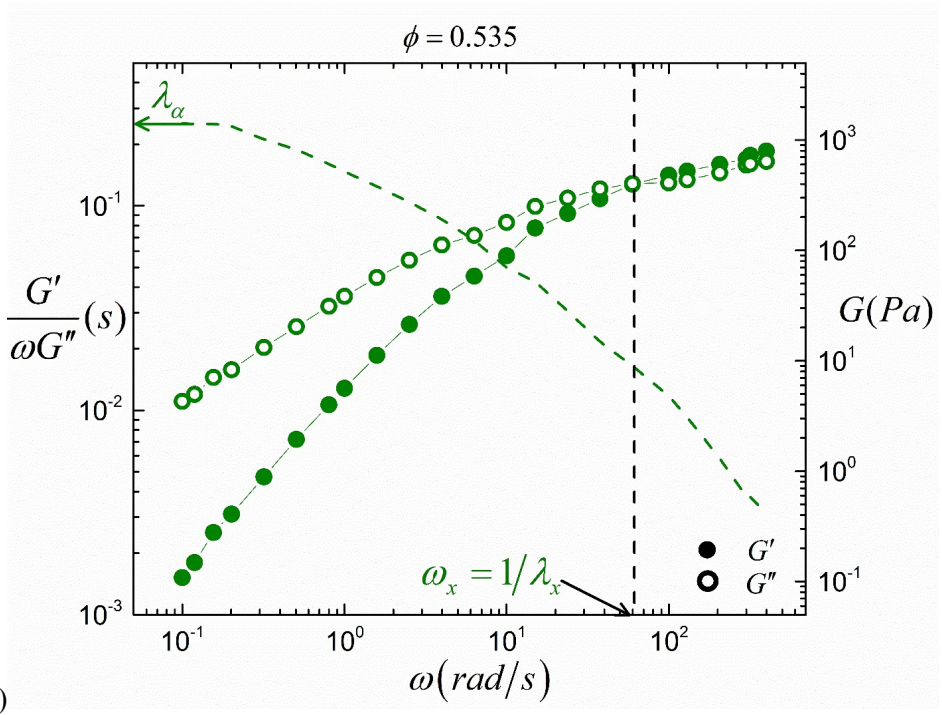


(a)

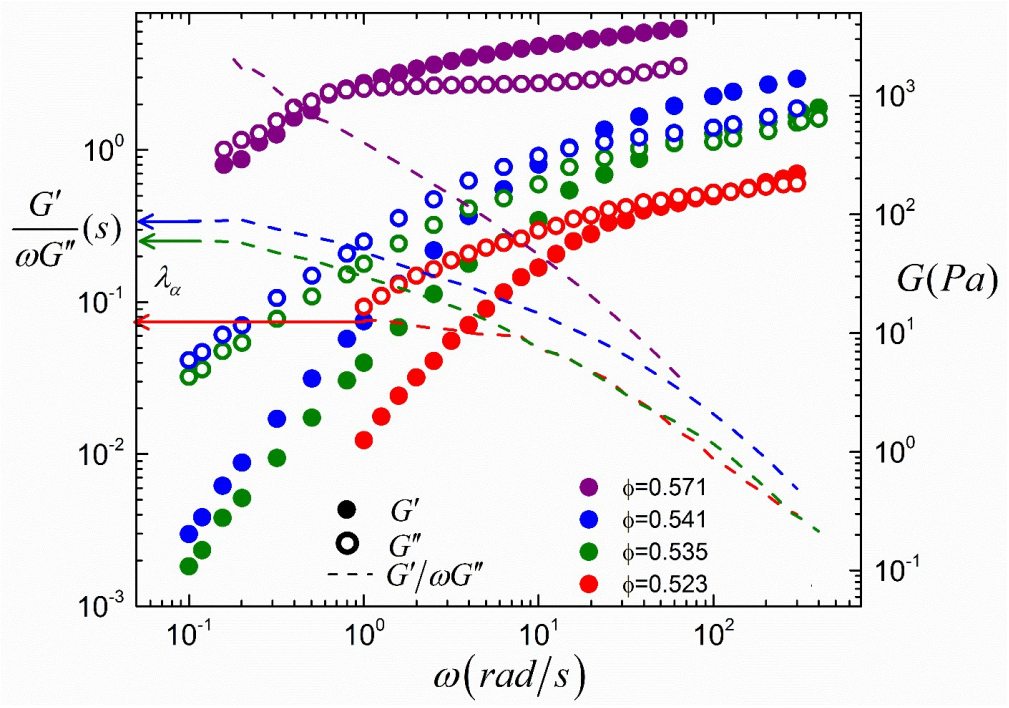


(b)

Fig S1 (a) and (b): Linear viscoelastic response of colloidal suspension following the rheological behavior predicted by using two-body theory

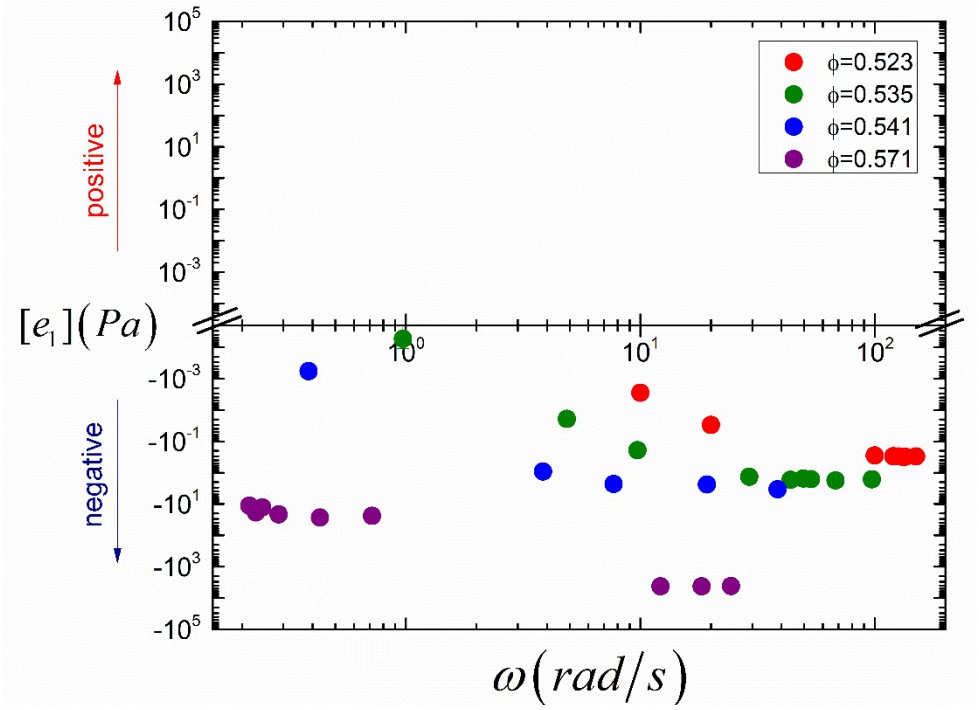


(a)

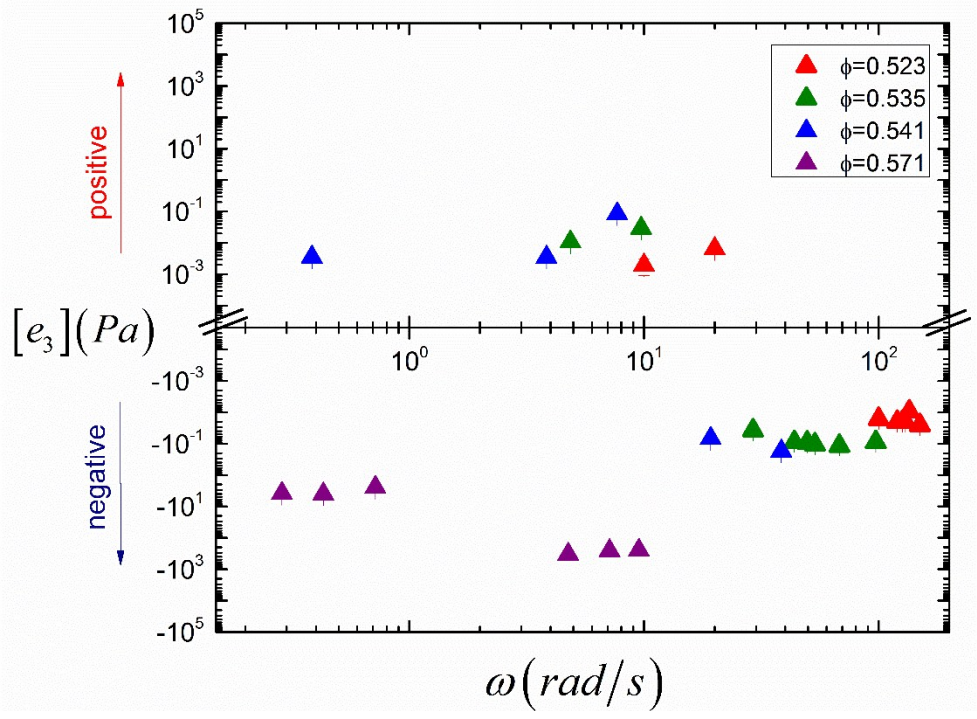


(b)

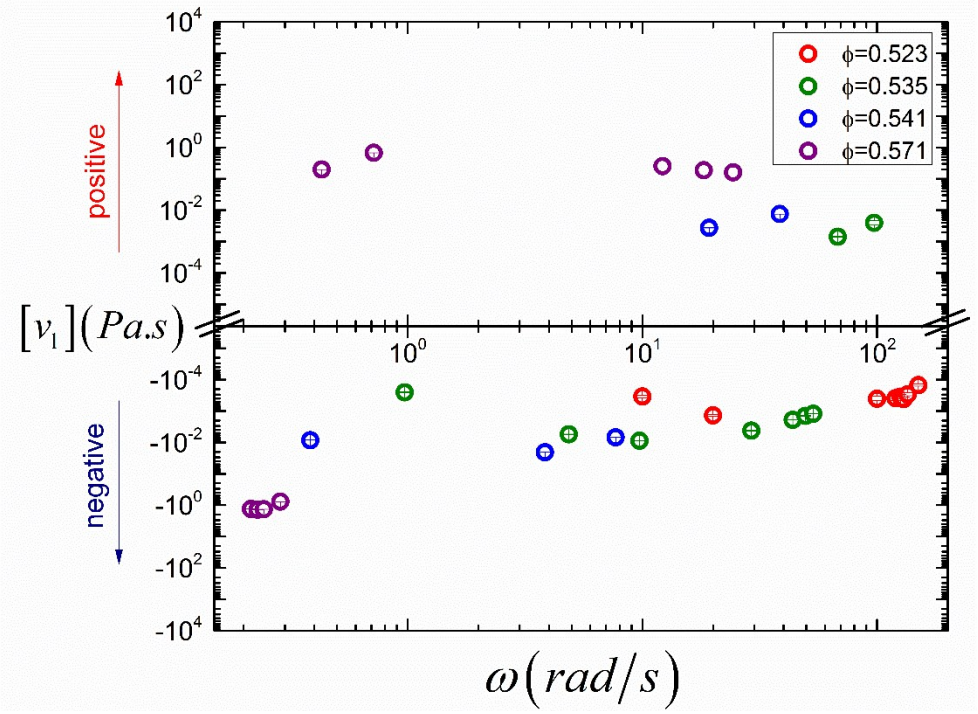
Fig S2: Linear viscoelastic response as a function of frequency on the right axis. On the left axis, $\frac{G'}{\omega G''}$ has been plotted that tends to λ_α when $\omega \to 0$. In (a) λ_x has also been shown for $\phi = 0.535$.


positive
negative
$[e_1](Pa)$
$\omega(rad/s)$
ϕ=0.523
ϕ=0.535
ϕ=0.541
ϕ=0.571

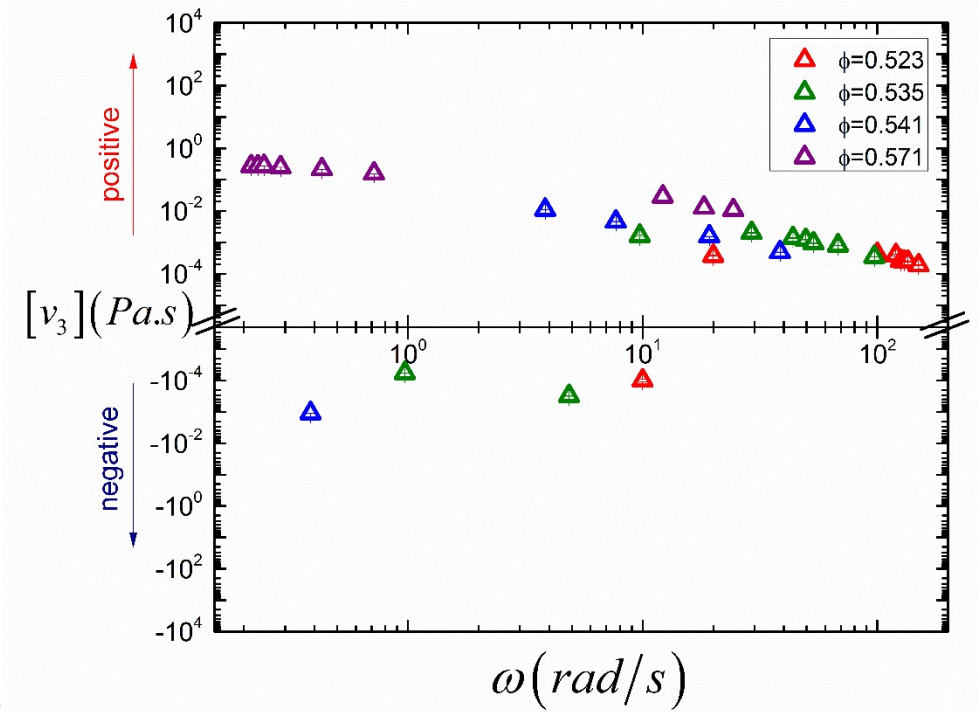
(a)


positive
negative
$[e_3](Pa)$
$\omega(rad/s)$
ϕ=0.523
ϕ=0.535
ϕ=0.541
ϕ=0.571

(b)



(c)



(d)

Fig S3 : Intrinsic nonlinearities as a function of applied frequency

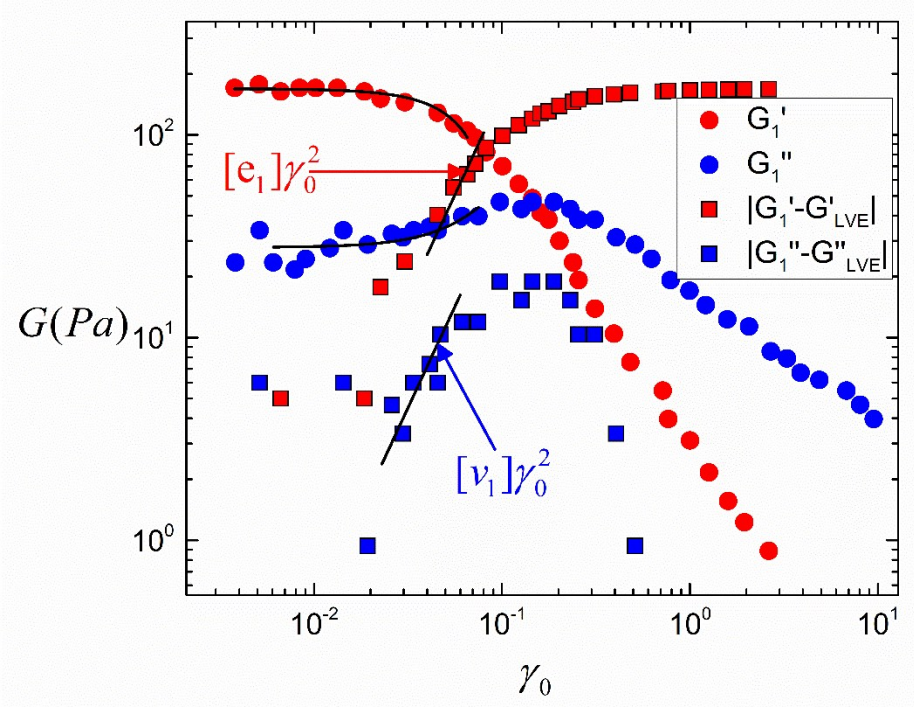


Fig. S4: Intrinsic nonlinearities, $[e_1]$ and $[v_1]$ extracted from Koumakis et al, *Soft Matter*, 2012 [27]